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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,781	11/26/2001	Henrik Stiesdal	PATRADE	5904

7590 05/20/2005
James C. Wray
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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/991,781

Applicant(s)

STIESDAL ET AL.

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 05-13-2005.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Applicants' Amendment dated July 1, 2004 has been carefully considered. Claims 17-20 are pending. The examiner appreciates the Applicants' cancellation of claims 14-16.

Upon further careful review of the amendment, the specification does not explicitly give a definition for the "means for connecting the serrated panel to a trailing edge on each of the wind turbine rotor blades of the wind turbine rotor" as recited in claim 17, lines 5-7. The examiner proposed during a telephone interview (see attached form PTOL- 413B) that the specification be amended on page 10, line 4 by inserting after "with", the phrase -- means for connecting the serrated panels to each blade in the form of --, in order to provide a one-to-one correspondence between the claimed means-plus-function subject matter and the specification. The examiner was requested to send out an Office action if the Applicants did not give their approval.

The indicated allowability of claims 17-20 is withdrawn in view of the above discussion.

Drawings

The drawings are objected to because figures 10-11 contain numerous regions that are blurred and unreadable. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the

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appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over German Patent 311,416 in view of Dassen. The German Patent 311,416 (figures 1 and 6-7) discloses an apparatus for improving efficiency of a wind turbine rotor substantially as claimed, having wind turbine rotor blades a, a' comprising serrations eb, e'b' connected to each wind turbine rotor blade, an upper and lower surface on each serration, a plurality of span-wise, periodic indentations, unnumbered means for connecting the serrations to a trailing edge on each of the wind turbine rotor blades of the wind turbine rotor such that the serrations extend from the trailing edge into the airflow behind the trailing edge (the description of figure 6 states that the serrations are fastened to the blades a, a'), with the serrations having a given stiffness allowing for an angle of the serrations to change passively in response to speed and angle of the airflow at the trailing edge of each of the wind turbine blades due to flexing of the serrations. The serrations on each of the wind turbine rotor blades extend along a spanwise extent of the trailing edge having a length of about 100 percent of a radius of the blade. One of ordinary skill in the art would readily recognize that the serrated trailing edges disclosed by the German Patent improve the lift and drag, which inherently improves the efficiency of the wind turbine, and the German Patent 311,416 also inherently increases efficiency because the serrated trailing edges are similar in nature to those disclosed by Applicants and inherently possess the same efficiency-increasing properties. As shown in figure 1, the angle of the serrations changes passively in response to the speed and angle of the airflow at the trailing edge due to the flexing of the

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serrations, shown flexibly moving from position ac to position a'c'. However, the German Patent does not disclose that the serrations are provided as a panel, with means for connecting the serrated panel to a trailing edge on each of the wind turbine rotor blades, and does not disclose the serrations on each wind turbine rotor blade having an angle different from 0 degrees relative to a mounting surface on each of the blade wind turbine rotor blades.

Dassen (figure 2 and column 2, lines 2-3) shows a wind turbine having rotor blades 3-5 that are furnished with serrated trailing edges 7 with plural span-wise, periodic indentations, with the serrations being provided as a retrofit of an existing wind turbine rotor by attachment of a serrated panel 7 (figure 2), which is fixed in a suitable manner to the rear edge of the blade by an inherent "means for connecting", with the serrations 7 on each wind turbine rotor blade having an angle different from 0 degrees relative to a mounting surface on each of the blade wind turbine rotor blades, for the purpose of reducing noise and inherently increasing efficiency by providing a readily attachable serrated panel at the trailing edges of the blades. In claim 17, lines 4-5, "means for connecting the serrated panel to a trailing edge on each blade of the wind turbine rotor" invokes 35 USC 112, sixth paragraph. Applicant has not provided any explicit definition in the specification of the "means for connecting the serrated panel to the trailing edge of the blades", and the means disclosed by Dassen for connecting the serrated panel 7 to the trailing edges of the blades meets the claimed function.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the wind turbine of the German Patent 311,416 such that the

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serrations are provided as a panel, with means for connecting the serrated panel to a trailing edge on each blade of the wind turbine rotor, and such that the serrations on each wind turbine rotor blade have an angle different from 0 degrees relative to a mounting surface on each of the blade wind turbine rotor blades, as taught by Dassen, for the purpose of reducing noise and inherently increasing efficiency by providing a readily attachable serrated panel at the trailing edges of the blades.

Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over German Patent 311,416 and Dassen as applied to claim 17 above, and further in view of Vijgen. The modified wind turbine rotor of German Patent 311,416 shows all of the claimed subject matter except for the sawteeth having approximately 60 degrees included angles between adjacent vertices.

Vijgen (figures 2, 3, and 13, for example) shows an airfoil 20 having a trailing edge 24 with a serrated panel 30 having plural spanwise periodic indentations in the form of sawteeth, having an included angle of 60 degrees, for the purpose of improving lift and drag.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified wind turbine of German Patent 311,416 such that the sawteeth have approximately 60 degrees included angles between adjacent vertices, as taught by Vijgen, for the purpose of improving lift and drag. In column 3, lines 32-37, Vijgen teaches that the principles of the invention may be applied to any aerodynamic lifting surface with sharp

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or moderately blunt trailing edges such as propeller blades or fan blades. Therefore, it would have been obvious to one of ordinary skill in the art to apply the teachings of Vijgen to the wind modified blades of the German Patent.

Examiner's Comment

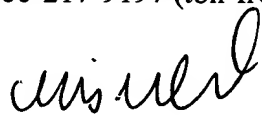
If the specification is amended on page 10, line 4 by inserting after "with", the phrase -- means for connecting the serrated panels to each blade in the form of --, in order to provide a one-to-one correspondence between the claimed means-plus-function subject matter and the specification, then claims 17-20 will be allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
May 13, 2005


Christopher Verdier
Primary Examiner
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